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Population Survey on Contributing Factors to Sustained Prevalence of Sick Cell Disease in Enugu, Nigeria

Enquête de Population sur les Facteurs Contribuant à la Prévalence Soutenue de la Drépanocytose à Enugu, Nigeria

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ABSTRACT

BACKGROUND: According to the World Health Organization, about 5% of the world's population has the abnormal haemoglobin gene with Nigeria having the highest burden of sickle cell disease (SCD). Concerted efforts should target the reduction of SCD prevalence.

OBJECTIVE: This study aimed to determine the various factors that contribute to the non-dwindling prevalence of SCD in Nigeria.

METHODS: A community-based cross-sectional survey was carried out on 883 respondents aged 18 years and above between February 2021 and March 2023 in Enugu State, Nigeria. Interviewer-administered questionnaires were used to obtain relevant socio-demographic data, family history of SCD, knowledge of their haemoglobin phenotype, and information on any previous misdiagnosis of their haemoglobin phenotype. Statistical Package for the Social Sciences (SPSS) software program, version 26.0 (Chicago, Illinois) was used for data analysis. A value of $P < 0.05$ was considered statistically significant.

RESULTS: Median age was 43 years with a range of 18-88 years. Seven hundred and forty-three (743/883, 81.1%) have done the test to ascertain their haemoglobin phenotype. On the other hand, 140 respondents (15.9%) have never done the test due to: lack of awareness (35/140, 25%); financial difficulties (53/140, 37.8%); religious reasons (35/140, 25%); discordant results (301/743, 40.5%) and not knowing where to go for the test (17/140, 12.1%). The distributions of the haemoglobin phenotypes were: HbAA (519/743, 69.9%); HbAS (196/743, 26.4%) and HbSS (28/743, 3.8%).

CONCLUSIONS: Over one-tenth (15.9%) of the study population do not know their haemoglobin phenotype status and their reasons for non-testing are varied. The population prevalence of SCD (3.8%) is higher than the previously reported national prevalence range of 1 - 3%. Addressing the identified barriers to non-testing might help in checking the increasing prevalence of SCD in Nigeria.

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KEYWORDS: Discordant Results, Haemoglobin Electrophoresis, Haemoglobin Phenotype, Laboratory, Sick Cell Anaemia

RÉSUMÉ

CONTEXTE: Selon l'Organisation mondiale de la santé, environ 5 % de la population mondiale possède le gène de l'hémoglobine anormale, le Nigeria ayant la plus forte charge de drépanocytose (SCD). Des efforts concertés devraient viser à réduire la prévalence de la drépanocytose.

OBJECTIF: Cette étude visait à déterminer les divers facteurs contribuant à la prévalence non décroissante de la drépanocytose au Nigeria.

MÉTHODES: Une enquête transversale communautaire a été menée auprès de 883 répondants âgés de 18 ans et plus entre février 2021 et mars 2023 dans l'État d'Enugu, Nigeria. Des questionnaires administrés par un enquêteur ont permis d'obtenir des données sociodémographiques pertinentes, des antécédents familiaux de drépanocytose, des informations sur leur phénotype d'hémoglobine et sur tout diagnostic erroné antérieur de leur phénotype d'hémoglobine. Le logiciel Statistical Package for the Social Sciences (SPSS) version 26.0 (Chicago, Illinois) a été utilisé pour l'analyse des données. Une valeur de $P < 0.05$ était considérée comme statistiquement significative.

RÉSULTATS: L'âge médian était de 43 ans, avec une fourchette de 18 à 88 ans. Sept cent quarante-trois répondants (743/883, 81.1%) ont effectué un test pour déterminer leur phénotype d'hémoglobine. En revanche, 140 répondants (15.9%) n'ont jamais effectué ce test en raison de : manque de sensibilisation (35/140, 25%) ; difficultés financières (53/140, 37.8%) ; raisons religieuses (35/140, 25%) ; résultats discordants (301/743, 40.5%) et ignorance de l'endroit où effectuer le test (17/140, 12.1%). Les distributions des phénotypes d'hémoglobine étaient : HbAA (519/743, 69.9%) ; HbAS (196/743, 26.4%) et HbSS (28/743, 3.8%).

CONCLUSIONS: Plus d'un dixième (15.9%) de la population étudiée ne connaît pas son statut de phénotype d'hémoglobine et les raisons de cette absence de test sont variées. La prévalence de la drépanocytose dans la population (3.8%) est supérieure à la plage de prévalence nationale précédemment rapportée de 1 - 3%. L'élimination des barrières identifiées à l'absence de test pourrait aider à limiter l'augmentation de la prévalence de la drépanocytose au Nigeria. WAJM 2024; 42 (1): 44-51

MOTS-CLÉS : Résultats discordants, Électrophorèse de l'hémoglobine, Phénotype de l'hémoglobine, Laboratoire, Anémie falciforme

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Abbreviations - HbAA: Normal Adult Haemoglobin; **HbSS:** Sick Cell Anaemia; **HbAS:** Carrier State; **LGA:** Local Government Area; **SCD:** Sick Cell Disease; **SCT:** Sick Cell Trait